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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/004,575

12/04/2001

Michael J. Collins

1700.89A

6616

33197

7590

09/11/2003

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EXAMINER

GAKH, YELENA G

ART UNIT

PAPER NUMBER

1743

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,575

Applicant(s)

COLLINS ET AL.

Examiner

Yelena G. Gakh, Ph.D.

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-18,21-28 and 31-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-18,21-28 and 31-42 is/are rejected.
- 7) ☒ Claim(s) 1,17 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

1. Appeal Brief filed on 07/21/03 is acknowledged. Claims 1, 4-18, 21-28 and 31-42 are pending in the Application.
2. In response to the Appeal the examiner withdraws the finality of the previous Office action and establishes new grounds for rejections in the present Office action.

Claim Objections

3. Claims 1, 17 and 28 are objected to as containing technically incorrect expression: "in response to pulsed radio frequencies from the NMR analyzer". Frequencies are just a physical parameter of the electromagnetic field. The correct expression should be "in response to pulsed irradiation at radio frequencies from the NMR analyzer". The appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 8 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite a step of "keeping the sample at a substantially constant temperature during the step of drying the sample". It is not quite clear, what this step means. Does it mean that the power of the microwave is kept the same during the process of drying, or something special is done to the sample to keep its temperature the same? It is well known, that the physical body is cooling down upon evaporation of the moisture it contains. Does it mean that the microwave power should be increased to keep the sample temperature the same?

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1, 4, 9, 14-16, 28, 31, 33 and 35** are rejected under 35 U.S.C. 102(b) as being anticipated by Thompson (AOSTRA J. Res.).

Thompson describes “evaluation of a microwave-NMR method for oil sand oil-water-solids analysis” (Title), the method comprising weighing oil-sand samples placed in alundum extraction thimbles before drying them in the microwave oven, reweighing them after the drying step (page 137, left column, Procedure), calculating the percentage of moisture in the samples based on the results of weighing (Figure 1), placing the thimbles with the samples in a thimble holder made of Teflon (page 137, right column, Equipment) and into the pulse NMR spectrometer for relaxation measurements (Figure 4), comparing the data on relaxation decay with those obtained for a plurality of pre-calibrated samples (page 138, left column) and obtaining percentage of oil content from NMR data. The temperature of water evaporation is usually higher than the temperature of fat melting, and therefore the temperature is inherently sufficient to melt at least a portion of the fat and oil in the sample. The method is applied to the plurality of samples (16) (page 137) with the samples weighted one after another and measured one after another in the NMR spectrometer.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claims 5-7, 10, 13, 17-18, 21, 23, 25-27, 32 and 36-40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson in view of Collins (US 4,554,132) or Bostian et al. (J. Assoc. Off. Anal. Chem.).

Thompson does not specifically teach placing the sample on low mass, porous, hydrophilic and lipophilic pad, made e.g. of glass fibers, or drying samples one after another.

Collins teaches a method for determination volatiles and solids in a sample using microwave heating and electronic balance within microwave weighing of fat or oil samples. The method comprises placing the sample on a sample pad transparent to microwave radiation and free of protons, of low mass, porous, hydrophilic and lipophilic (e.g. glass fiber filter (col. 5, line 5)), weighing the sample on the sample pad before and after drying, and calculating percentage of moisture, and fat and oils in the sample.

Bostian teaches "automated methods for determination of fat and moisture in meat and poultry products", comprising determining moisture content by placing samples on glass fiber pads and weighing them before and after drying in microwave on electronic balance located inside the microwave.

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It would have been obvious for anyone of ordinary skill in the art to slightly modify Thompson's method when applied to other oil- and especially fat-containing samples by placing them on the pad disclosed by Collins or Bostian and drying them in the microwave one after another, because the pad disclosed by Collins or Bostian is more efficient for holding oil- and fat-containing samples other than oil sand disclosed by Thompson, and because electronic balance within the microwave disclosed by Collins or Bostian allows drying the samples one after another, since the weighing step takes place in the same microwave.

It would have been obvious for anyone of ordinary skill in the art to perform NMR measurements at the same temperature at which the samples were dried in the microwave, because this prevents changing the content of moisture in the sample.

12. **Claims 11-12, 24-25, and 41-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson in view of Collins or Bostian as applied to claims 5-7, 10, 13, 17-18, 21, 23, 25-27, 32 and 36-40 above, and further in view of Jerosch-Herold et al. (US 5,289,124).

Thompson in view of Collins or Bostian does not particularly teach using wrapping the sample on the pad with a Teflon wrapping sheet, although Thompson discloses Teflon holder for the thimble when placing the sample into the NMR detector.

Jerosch-Herold teaches permeability determination from NMR relaxation measurements for fluids in porous media by placing samples (sandstone core plugs) in a sealed container and imbibing with water for several hours, followed by sealing the samples with Teflon tape and transferring into NMR glass tube for measurements.

It would have been obvious for anyone of ordinary skill to slightly modify Thompson-Collins/Bostian's method by using Teflon wrapper, as taught by Jerosch-Herold, because in both cases the Teflon wrapper seals the sample and prevents absorbing additional water or losing moisture content of the sample, and because Teflon wrapper is the most suited for proton NMR relaxation studies, as demonstrated by Thompson who uses Teflon for holding the thimble with the sample in the NMR spectrometer, and because Teflon is conventionally used for microwave heating.

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Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Moisio et al. (Milchwissenschaft, 1972)* teach a "a rapid method for the determination of the dry matter and fat content of cheese and processed cheese" comprising drying samples in the microwave and performing NMR measurements using calibrating samples with known fat content; *Karleskind et al. (Revue Francaise, 1976)* teach a "rapid method for the NMR determination of the oil content of grains after drying in a microwave oven"; *Wilmers et al. (Revista, 1978)* discloses "single corn kernel wide-line NMR oil analysis" comprising determining oil content in corn kernel in dried and non-dried kernels by NMR, with drying performed in conventional air forced oven at 40 °C; *Gambhir et al. (JAOCS, 1985)* teach "simultaneous determination of moisture and oil content in oilseeds by pulsed nuclear magnetic resonance" comparing the results with those obtained by drying the seeds in the oven; *Tiwari et al. (JAOCS, 1995)* disclose "seed oil determination without weighing and drying the seeds by combined free induction decay and spin-echo nuclear magnetic resonance signals".


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (703) 306-5906. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (703) 308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

YG

September 5, 2003


Jill Warden
Supervisory Patent Examiner
Technology Center 1700